

**REMARKS**

The Office Action mailed January 7, 2009 has been carefully considered.  
Reconsideration in view of the following remarks is respectfully requested.

**Subject Matter Indicated Allowed or Allowable**

Applicants gratefully acknowledge the indication of allowance of claims 10-11. Claim 10 has been amended simply to remove reference numerals, which does not change the intended scope of the claims or raise any new issues with respect to Claims 10-11 that the Examiner has not already considered. Therefore, Applicants respectfully submit that Claims 10-11 are still allowable and should be allowed.

**Amendment to Claims 4-10**

Claims 4-5 and 7-10 have been amended for improved clarity, by removal of reference numbers. Moreover, claims 5-8 are additionally amended to maintain consistent antecedent basis with claims upon which they depend. These amendments do not raise any issues beyond those already considered by the Examiner.

No amendment made is related to the statutory requirements of patentability unless expressly stated herein. No amendment is made for the purpose of narrowing the scope of any claim, unless Applicant argues herein that such amendment is made to distinguish over a particular identified reference or combination of references. Any remarks made herein with respect to a given claim or amendment is intended only in the context of that specific claim or amendment, and should not be applied to other claims, amendments or aspects of Applicant's invention.

**Rejection(s) Under 35 U.S.C. §102**

Claim 1 has been amended to specify that the nano-objects are "in a metallic state."  
Claims 1-9 stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Yu et al. (U.S. Patent Publication 2002/0088970). According to the Examiner, Yu:

discloses nano-objects (312), particularly atomic threads, single dimensional nano-structures and quantum dots, this set being characterized in that the nano-objects are made of a metal and are formed on the surface of a substrate (302) made of a monocrystalline semiconducting material.

(Office Action p. 2.) In Yu, however, the quantum dots 312 is not “in a metallic state” as required by amended claim 1. The quantum dots of 312 are made of Cu<sub>2</sub>O, which has a non-metallic crystal structure and does not exist in a metallic state. As seen in Fig. 20 of Yu, the dots 312 are formed from an initial layer of copper oxide 310 which grows during processing into a series of quantum dots composed of copper oxide. (See Yu, para 89.) The dots 312 of Yu are not in a metallic state, and thus, Yu does not disclose quantum dots “in a metallic state.”

It will be appreciated that, according to the M.P.E.P., a claim is anticipated under 35 U.S.C. §102 only if each and every claim element is found, either expressly or inherently described, in a single prior art reference.<sup>1</sup> The aforementioned reasons clearly indicate the contrary, and withdrawal of the 35 U.S.C. §102 rejection of claim 1 based on Yu is respectfully urged.

In addition, although the Examiner did not reject claim 1 for obviousness based on 35 U.S.C. §103, it is clear that the present claim 1 is not obvious in view of Yu, given that the Yu process could not lead to quantum dots in a metallic state. The self-organizing quantum dots of Yu are the result (according to Yu para. 89) of a mismatch between the copper oxide 310 and the underlying metal oxide layer 308. The present invention, however, does not depend on the crystal geometry of metal oxides and is therefore nonobvious.

Because claims 2-9 depend directly or indirectly on claim 1 and inherit its limitations including the “in a metallic state” limitation, Applicants respectfully request that the rejection of claims 2-9 under 35 U.S.C. §102 be withdrawn as well. In addition, Applicants disagree, without limitation, with the Examiner’s statement with respect to claims 7 and 8, that Yu discloses “parallel atomic threads” or “single-dimensional . . . strips,” or that these threads and strips are “metal.” (Office Action p. 3.) Actually, Yu only describes either “three dimensional quantum dots [310]” made of copper oxide or “metal oxide layer 308” (Yu para 89), not metallic one-dimensional structures.

Therefore, Applicants respectfully request the withdrawal of the 35 U.S.C. §102 rejections of claims 1-9 based on Yu is respectfully urged.

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<sup>1</sup> Manual of Patent Examining Procedure (MPEP) § 2131. See also *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

**Conclusion**

In view of the preceding discussion, Applicants respectfully urge that the claims of the present application define patentable subject matter and should be passed to allowance.

If the Examiner believes that a telephone call would help advance prosecution of the present invention, the Examiner is kindly invited to call the undersigned attorney at the number below.

Please charge any additional required fees, including those necessary to obtain extensions of time to render timely the filing of the instant Amendment and/or Reply to Office Action, or credit any overpayment not otherwise credited, to our deposit account no. 50-3557.

Respectfully submitted,  
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Dated: April 3, 2009

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